



# Indications & Yield of Colonoscopy - A Retrospective Study at Chennai Medical College Hospital & Research Centre - Irungalur, a Rural Tertiary Care Centre in South India

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## ABSTRACT

Colonoscopy is the one of the most important investigation to be done for patients presenting with symptoms of colonic diseases. The clinical presentation of lower GI tract diseases varies in different communities. The yield of colonoscopy also varies from place to place and the yield also depends on the various indications.

**Aim of the Study:** To know the indications for colonoscopy in patients with symptoms of lower GI tract diseases and also to assess the yield of colonoscopy in various indications.

**Materials and Methods:** A retrospective study of patients who underwent colonoscopy from November 2014 to October 2016 at CMCH & RC was done. Data were collected from endoscopy register and analysed.

**Results:** A total of 513 patients who registered for colonoscopy were evaluated. Male: female ratio was 341:172. Among those 506 patients (98.6%) tolerated the procedure. Caecum could be reached for 91.3% of the patients. Most common indication was bleeding per rectum 25.49%, clinical suspicion of Irritable Bowel Syndrome (IBS) 17.7%, Constipation 15.2%.

The findings were normal study in 36.56%, haemorrhoids: 30.8%, polyp colon: 9.2%, Inflammatory Bowel Disease: 6.52%, carcinoma: 4.74%.

Polypectomy was done in 10 cases. Overall yield of colonoscopy was 63.5%.

**Conclusion:** Colonoscopy is an effective procedure for diagnosing lower GI symptoms. The yield of colonoscopy is high in patients with symptoms of bleeding per rectum, carcinoma colon, anaemia, ileocaecal Kochs..

**Key Words:** Colonoscopy, Bleeding per rectum, Yield of colonoscopy

## INTRODUCTION

Colonoscopy is the main investigative procedure in patients with suspected lower GI tract diseases. Suspicion of colonic diseases arise when the patients having symptoms such as anaemia, diarrhoea, constipation, abdominal pain, bleeding per rectum, features of malignancy like weight loss, loss of appetite, altered bowel habits<sup>7</sup>. The current practice is to perform colonoscopy for all the patients who present with symp-

toms of lower GI tract diseases and it is the better first line investigation<sup>1</sup>. Colonoscopy is useful to know the exact site of lesion, to confirm the diagnosis by biopsy, or removal of suspected cancerous lesions in polyps<sup>2</sup>. There are still some controversies regarding open access endoscopic service versus a strict criteria for doing the procedure<sup>3,4,5</sup>. Selection of the patients for colonoscopy based on symptoms is important, because the colonoscopy helps to detect the malignant lesions as well helps to treat the benign lesions also. Data has

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been reported from various studies documenting the indications and the yield of colonoscopy in various symptoms of colonic disease<sup>6,7</sup>. Only few studies are reported regarding the evaluation of indications & the yield of colonoscopy in South India.

The aim of the study is to know the indications of colonoscopy in various symptoms of colonic disease and assess the yield of colonoscopy in these indications in our hospital, a tertiary care centre, in rural part of South India.

## MATERIALS AND METHODS

It is a retrospective study of the available data from the colonoscopy procedures performed by the medical gastroenterologist at Medical Gastroenterology Department Chennai Medical College Hospital and Research Centre, Irungalur, Tiruchirapalli, Tamilnadu, South India. Data from November 2014 to October 2016 was reviewed.

Patients with any of these symptoms of (Table 2)

Bleeding per rectum

Clinical suspicion of Irritable Bowel Syndrome

Constipation

Chronic diarrhoea

Anaemia

Abdominal pain

Clinical suspicion of carcinoma colon

Right Iliac Fossa mass & Right Iliac Fossa pain were included. Patients who attended the Gastroenterology outpatient department, as well as cases referred from the wards were scrutinised by the Gastroenterologist and selected for colonoscopy. Colonoscopy was done after proper bowel preparation. Colonoscopy was done without sedation. Biopsies were taken by the Gastroenterologists discretion. Diagnostic yield was regarded as positive for each of the indication, if the lesion found could account for the symptoms of the patient. Data analysis includes all the cases posted for colonoscopy, including the cases where the colonoscopy not reached up to caecum.

## RESULTS

Total of 513 cases selected for colonoscopy. 506 cases had undergone colonoscopy. The number of males and females were 66.4% and 33.62% respectively. Age and sex distribution shown in Table 1.

The caecum and terminal ileum was reached in 462 cases (91.3%). The commonest indications for colonoscopy

were bleeding per rectum 129 cases (25.49%), and other indications were clinically suspected Irritable Bowel Syndrome (IBS) 90 cases (17.79%), constipation 77 cases (15.22%), chronic diarrhoea 39 cases (7.71%), clinically suspected IleoCaecal Kochs 35 cases (6.92%), anal fissures 24 cases (4.74%), anaemia 23 cases (4.55%), fistula in ano 17 (3.36%), abdominal pain 12 cases (2.37%), clinically suspected colon cancer 11 cases (2.17%), Right Iliac fossa pain & mass 8 cases (1.58%), and surveillance scopy (which includes colonoscopy done for Inflammatory Bowel Disease, melena, Alcoholic Liver Disease, Hepatomegaly, Portal Hypertension, Recto-Vaginal fistula, etc.) (Table.2).

Colonoscopic findings were, Normal study in 185 cases (36.56%), haemorrhoids in 156 cases (30.8%), polyp colon 47 cases (9.29%), Inflammatory Bowel Disease (Chrons -9 & ulcerative colitis-24) in 33 cases (6.52%), carcinoma colon in 24 cases (4.74%), kochs lesion in 12 cases (2.37%), proctitis in 9 cases (1.78%), diverticular disease in 6 cases (1.19%), solitary rectal ulcer in 5 cases (0.99%), non specific ulcers rectum in 4 cases (0.79%), pancolitis in 4 cases (0.79%), & others (caecal telangectasia, porta hypertensive colopathy, pseudomembranous colitis, pin worm infestation, Gastro-Jejunocolic fistula, extraneous compression etc.) in 21 cases (4.15%) (Table.3).

Out of 47 polyps diagnosed by colonoscopy, 15 polyps were diminutive, 8 were sessile, 20 were <1cm, 4 were multiple colonic polyps. Polypectomy done in 10 cases with endoscopic suspicion of malignancy. On Histo-Pathological Examination 1 was carcinoma, 1 was adenomatous, 2 were hyperplastic polyps, 1 was inflammatory polyp, features of non specific colitis in 3, 1 was juvenile polyp, one report not traceable.

Of the 24 malignant lesions diagnosed by colonoscopy, the commonest site was recto sigmoid in 7 cases, hepatic flexure in 5 cases, rectum in 4 cases, sigmoid & ascending colon each 3 cases, transverse colon 1 case, synchronous lesion in 1 case. Of the 24 cases, 18 cases were adenocarcinoma, 1 case was melanoma, 2 lesions turned out to be chrons, one lesion was kochs by histo-pathological examination, one case was recurrence and one report was not traceable.

### The overall diagnostic yield was 63.46%

Of the 129 cases presenting with bleeding per rectum, cause identified were haemorrhoids in 93, polyp 12, carcinoma 6, pancolitis 1, IBD 2, kochs lesion 1, caecal telangectasia 1, non specific ulcer rectum 1 and normal study 12. Diagnostic yield in bleeding per rectum was 90.7% (Table.4).

Of the 90 patients with Irritable Bowel Syndrome, normal study in 44, IBD in 14, haemorrhoids in 10, polyp in 9, carcinoma in 3, proctitis in 3, kochs lesion in 2, diverticulitis in 2, pan colitis in 1, solitary rectal ulcer in 1, non specific ulcer rectum in 1. Diagnostic yield was 51.1% (Table 5).

Of the 77 patients with constipation, normal study in 50, haemorrhoids in 12, polyps 4, proctitis 2, carcinoma 2, kochs lesion 1, solitary rectal ulcer 1, others 5. Diagnostic yield was 35.1% (Table 5).

Of the 39 patients with chronic diarrhoea, the colonoscopic findings were normal study in 17, Inflammatory Bowel Disease in 8, haemorrhoid in 4, polyp in 3, pancolitis 2, proctitis 2, solitary rectal ulcer 1, & others 2. Diagnostic yield was 56.41% (Table 5).

Of the 23 cases of anaemia, the colonoscopic findings were, normal study in 11 cases. haemorrhoids 5, polyp 3, carcinoma 3, others 1. Diagnostic yield was 52.2% (Table 5).

Of the 11 cases of clinically suspected carcinoma, the colonoscopy findings were, normal study in 1 case, haemorrhoids in 1, polyp 1, carcinoma 7, diverticulitis 1. Diagnostic yield was 90.9% (Table 5).

Of the 35 cases of clinically suspected Ileo Caecal Kochs the colonoscopy findings were normal study in 11 cases, haemorrhoids in 7 cases, features of Inflammatory Bowel Disease in 4 cases, kochs in 4 cases, polyps 3, diverticulitis in 2, proctitis 1 case, carcinoma in 1, non specific ulcer 1, and others 1. Diagnostic yield was 68.6% (Table 5).

## DISCUSSION

There are still controversies regarding open access endoscopy versus strict criteria for doing the procedure<sup>6,15</sup>. Doing endoscopy based on strict selection criteria are bound to miss patients with significant and potentially treatable colonic pathology. The answer lies in better selection of patients for the procedure based on diagnostic yield<sup>5</sup>. No strict criteria or double contrast enema were used in our study for the selection of the patients before the procedure. Cases were selected by the gastroenterologist based on clinical symptoms and signs.

In our study in addition to the seven major indications described by Berkowitz<sup>6</sup>, Al Shamali<sup>9</sup> patients with fistula in ano, and fissure in ano also had undergone colonoscopy. The most common indication was bleeding per rectum 25.49%, these were also the indication for colonoscopy in the study by Berkowitz et al<sup>6</sup> Sahu et al<sup>10</sup> Olokoba AB et al.<sup>8</sup>

Complete examination up to caecum was possible in 91.3% of cases similar to the study by Md Abu Sayeed et al<sup>5</sup>. (94%), Most of the lesion were limited to rectum and anal canal, the reason being the haemorrhoids was the most common finding in the study, which was similar to the study by H. N. Dinesh et al.<sup>1</sup>

The overall diagnostic yield in this study was 63.44% which is less compared to the study by Bo Ismalia M A et al<sup>11</sup> & Olokoba AB et al<sup>8</sup> who reported 79% & 79.6% respectively

& higher compared to the study by Sahu et al<sup>10</sup> who reported 48%.

In this study the yield of colonoscopy in bleeding per rectum was 90.8% which is similar to the study by Md. Abu Sayeed et al<sup>5</sup> who reported 92%. The haemorrhoids were present in 63% of the cases of bleeding per rectum which is almost similar to study Robert J et al<sup>16</sup> where the incidence was 60.5%. The colonoscopic yield for malignant neoplasms in bleeding per rectum is 4.61% which is less compared to the study by Berkowitz et al<sup>6</sup> which was 8.9%.

In our study the diagnostic yield was high in patients with clinical suspicion of colonic carcinoma was 90.9%. which was high compared to the study by Al Shamali et al<sup>9</sup> which was 53%.

The diagnostic yield of anaemia was 52.1% in our study, which was 47.7% by Berkowitz et al<sup>6</sup>. The colonoscopic yield of malignancy was 13% which was high compared to the study by Berkowitz et al<sup>6</sup> who reported 2.2% in anaemia and it was almost equal to 11% reported by Rockey DC et al<sup>19</sup>

The yield of colonoscopy in suspected Irritable Bowel Syndrome patients was 51.1%. The most common lesion was Inflammatory Bowel Disease, haemorrhoids, polyps. Haemorrhoids, polyps, diverticulosis were the commonest lesion in a study by William D Chey et al<sup>16</sup>.

The diagnostic yield of colonoscopy in constipation was 35.06% & incidence of malignancy in constipation was 2.9% which was low in our study compared to the study by M Mojoli et al<sup>18</sup> where diagnostic yield was 39.4% & the malignancy was 6.3%.

In developing countries where infective diarrhoea is still common, selecting the patient for colonoscopy was difficult. In this study the diagnostic yield for diarrhoea was 56.4%, which was high compared to the study by Al Shamali et al<sup>9</sup> which was 35%. The most common finding was Inflammatory Bowel Disease which was consistent with his study. No malignant lesions were reported.

Malignant lesions by colonoscopy were seen in 24 cases. Of the HPE, 18 cases were adenocarcinoma, one was melanoma, One lesion in ascending colon and two lesions in hepatic flexure turned out to be kochs and chrons diseases. Of the 18 cases the commonest indications were bleeding per rectum, anemia, IBS, constipation, clinically suspected colonic carcinoma. One case was diagnosed in fistula in ano that indicates the usefulness of open access endoscopy.

In our study even though diagnostic yield was low in constipation, malignancy was diagnosed in younger patient which indicates that open access colonoscopy is ideal where the facilities and expertise are available. Over the past few years there were so many articles about the appropriateness

of colonoscopy and the use of guidelines for this purpose. Dayna et al<sup>13</sup> have discussed the general indications for colonoscopy and the indications in our study was also similar to their guidelines. Even though there are so many guidelines, an open access to colonoscopic evaluation is ideal to rule out colonic disease. Limitations in our study it was a retrospective study.

## CONCLUSION

In our study colonoscopy was done in all the patients presenting with symptoms of lower GI tract. It indicates that colonoscopy should be the primary investigation in patients with lower GI tract diseases. An open access colonoscopy seems ideal if facilities and expertise are available. This study was done in outpatient settings which contribute additional knowledge and also reassurance as to quality and safety of colonoscopy performed in outpatient settings. Colonoscopy has also has great therapeutic value, because colonoscopic biopsy helps to arrive a diagnosis and it has saved many patients from extensive surgery. Even though the diagnostic yield is significant in our study, further prospective studies to be done to have still more better yield in both diagnosis and therapeutic use.

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## Ethical Clearance

Ethical clearance for the use of clinical data and preparation of this Research paper has been obtained from the Management of CMCH&RC, Irungalur, Tiruchirappalli Dt. Tamilnadu.

## Informed Consent

Not applicable.

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## Conflict of Interest

There is no conflict of interest in the preparation and submission of this Research Paper.

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**ANNEXURE : TABLES****Table 1: Age and Sex Wise Distribution**

Age Group	Male	Female	Total
11 TO 20	21	8	29
21 TO 30	58	29	87
31 To 40	67	43	110
41 TO 50	57	42	99
51 TO 60	75	29	104
61 TO 70	47	15	62
71 TO 80	16	6	22
TOTAL	341	172	513

**Table 2: Indications for Colonoscopy**

Symptoms	Number of Cases	% Ge
Bleeding P/R	129	25.49%
IBS	90	17.79%
Constipation	77	15.22%
Chronic Diarrhoea	39	7.71%
Kochs Ileo Caecal	35	6.92%
Anal Fissure	24	4.74%
Anemia	23	4.55%
Fistula in ANO	17	3.36%
Abdominal Pain	12	2.37%
Carcinoma Colon	11	2.17%
RIF Pain/RIF Mass	8	1.58%
Surveillance Scopy	41	8.10%
Total	506	

**Table 3: Colonoscopic Findings**

	Number of Cases	
	Nos	%Ge
Normal Study	185	36.56%
Haemorrhoids	156	30.83%
Carcinoma	24	4.74%
Inflammatory Bowel Disease	33	6.52%
Polyp Colon	47	9.29%
Kochs Lesion	12	2.37%
Proctitis	9	1.78%
Diverticular Disease	6	1.19%
Solitary Rectal Ulcer	5	0.99%
Non Specific Ulcers Rectum	4	0.79%
Pan Colitis	4	0.79%
Others	21	4.15%
Total	506	

**Table 3: Diagnostic Yield in Bleeding P/R**

	Number of Cases	%
Normal Study	12	9.23%
Haemorrhoids	93	71.54%
Polyp Colon	12	9.23%
Carcinoma	6	4.62%
Pan Colitis	1	0.77%
Ulcerative Colitis	1	0.77%
Caecal Telengectasia	1	0.77%
Non Specific Ulcer Rectum	1	0.77%
Chrons Lesion	1	0.77%
Koch S Lesion	1	0.77%
Total	129	

**Table 5: Diagnostic Yield in Other Indications**

INDICATIONS	NORM AL STUDY	HEMO RRHOI DS	KOCHS	POLYP	ROCTITI	IBD	PAN COLITIS	CARCIN OMA	SRU	NON SPECIFIC RECTAL ULCER	DIVERT ICULITI S	OTHERS	TOTAL NO OF CASES	DIAGN OSTIC YIELD
IBS	44	10	2	9	3	14	1	3	1	1	2	0	90	51.1%
CONSTIPATION	50	12	1	4	2	0	0	2	1	0	0	5	77	35.1%
IC KOCHS	11	7	4	3	1	4	0	1	0	1	2	1	35	68.6%
CH. DIARRHOEA	17	4	0	3	2	8	2	0	1	0	0	2	39	56.4%
ANAEMIA	11	5	0	3	0	0	0	3	0	0	0	1	23	52.2%
CA.COLON	1	1		1	0	0	0	7	0	0	0	1	11	90.9%